

### **REMARKS**

The Office Action mailed February 25, 2005 has been carefully reviewed along with the references cited therein. In the Office Action, the Examiner objected to claim 16 due to minor informalities. The Examiner rejected all claims under 35 U.S.C. § 103(a). The Examiner rejected claims 1-16 as being unpatentable over U.S. Patent No. 6,481,874 (Petroski) in view of U.S. Patent No. 5,008,585 (Tanuma et al.). The Examiner also rejected claim 17 as being unpatentable over Petroski in view of Tanuma et al. as applied to claim 1, and further in view of U.S. Patent No. 4,501,319 (Edelman et al. '319). Claims 18-25 were rejected as being unpatentable over Petroski in view of Tanuma et al. and Edelman et al. '319 as applied to claim 17, and further in view of U.S. Patent No. 4,406,323 (Edelman et al. '323). Claims 26-33 were rejected as being unpatentable over Petroski in view of Tanuma et al. as applied to claim 1, and further in view of Edelman et al. '319. Claims 34-35 were rejected as being unpatentable over Petroski in view of U.S. Patent No. 6,588,497 (Glezer et al.).

In this Response, Applicant has amended claims 15 and 16 to overcome the Examiner's objection to claim 16.

All claims pending in the application were rejected as being unpatentable over Petroski combined with either Tanuma et al. or Glezer et al. Mr. Petroski is an inventor on the subject application. Tanuma et al. issued prior to Mr. Petroski's filing of the application that matured into the Petroski reference. Accordingly, Tanuma et al. was available to Mr. Petroski when he filed the application that matured into the Petroski reference; however, Mr. Petroski did not include a fluid current generator in the device disclosed in the Petroski reference.

Petroski discloses lighting device (e.g., flashlights, spot LED lighting modules, etc.) 10. Col. 4, lines 49-52. The device 10 includes a housing 22, an LED 12 disposed in the housing, and a heat sink 20 also disposed in the housing. Petroski attempts to overcome the problems that are caused when there is no effective means for *passively* cooling an LED lighting system. Col. 1, lines 49-56 (emphasis added). Petroski states that heat is transferred from the heat sink 20 to an external environment 24 via the housing 22. Col. 3, lines 7-8. The heat from the die 14 is primarily transferred to the heat sink 20 and then to the housing 22 via conduction, rather than radiation or convection. Col. 3, lines 7-10. The

heat is preferably transferred from the housing 22 to the external environment 24 via convection. Col. 3, lines 12-13.

Conduction is the transfer of heat from one substance to another by direct contact. Petroski indicates that heat is transferred from the heat sink 20 to the housing 22 via conduction. So that the heat is transferred via conduction, Petroski either provides an intimate fit between the heat sink 20 and the housing 22 or a thermally conductive adhesive 30 between the heat sink 20 and the housing 22. Convection, on the other hand, is the transfer of heat by fluid motion. Petroski teaches that heat is transferred to the ambient from the housing 22 via convection.

The Examiner has attempted to modify the device in Petroski so that it includes a fluid current generator. The proposed modification goes against the principle of operation of Petroski. As mentioned above, Petroski attempts to overcome the problems associated with providing no effective means to *passively* cool an LED. Providing a fluid current generator actively cools the LED. Since the proposed modification of Petroski would change the principle of operation of the Petroski device, i.e. change the device from an actively cooled device to a passively cooled device, its teachings are not sufficient render claim 1 obvious. Nevertheless, the Examiner's proposed modification is incorrect for additional reasons.

Applicant's claim 1 recites "a fluid current generator disposed in said housing for creating a current over said heat dissipating structure." To have claim 1 read on the modified device, the Petroski device would have to be modified to include a fluid current generator in the housing 22. The only place that would make any sense to provide a fluid current generator in the lighting device 10 of Petroski would be outside of the housing 22 where the heat is being transferred via convection. Positioning a fluid current generator outside of the housing, however, would no longer anticipate claim 1.

By positioning a fluid current generator inside of the housing of Petroski, in an attempt to anticipate claim 1, the fluid current generator would serve no purpose because the heat would still have to escape via conduction through the housing 22. After considering Petroski as a whole, one would not modify the lighting device in Petroski to include a fluid current generator disposed in the housing. Accordingly, Applicants submit that claim 1, and those that depend from it, patentably define over the cited references.

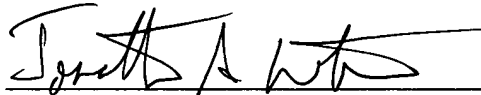
Claim 34 recites a synthetic jet actuator disposed in said housing. The reasons stated above as to why one would not modify the lighting device in Petroski to include a fluid current generator, also apply as to why one would not include a synthetic jet actuator disposed in the housing. Accordingly, Applicants submit that claim 34, and those that depend from it, patentably define over the cited references.

### Conclusion

In view of the above, it is submitted that the pending claims patentably define over the cited references. Accordingly, the application is in condition for allowance. An early notice to that effect is earnestly solicited. Should the Examiner wish to discuss the application, he is encouraged to telephone the undersigned.

Respectfully submitted,

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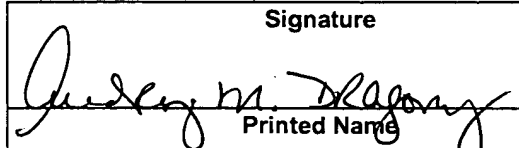
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